



## Nugget of DMR-Funded Work:

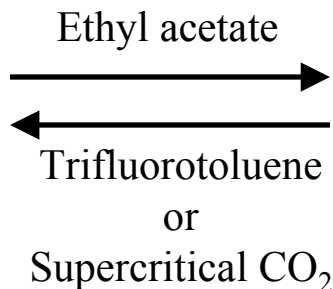
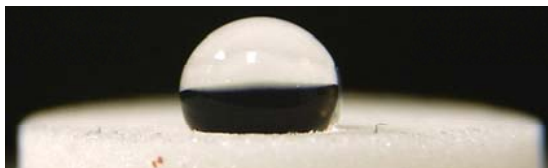
### **Controlled Porosity by Rearrangement of a Diblock Copolymer Brush**

**Experimental system:** SiO<sub>2</sub>/poly(methyl acrylate)-*b*-poly(pentafluoropentyl acrylate) brush on a glass frit (8-10 μm porosity) – brush thickness = 13 nm

**Results:** *water contact angles indicated a change in the surface composition that was induced by treatment with block-selective solvents or supercritical CO<sub>2</sub>*

**Implications:** *we have used a glass frit as a model for microfluidic channels...these results demonstrate that diblock brush rearrangement can alter flow...diblock brush rearrangement can be induced by compositional changes in the fluid*

$$\begin{aligned}\theta_s (\text{sessile}) &= 135^\circ \\ \theta_a (\text{advancing}) &= 168^\circ\end{aligned}$$



$$\begin{aligned}\theta_s (\text{sessile}) &= 92^\circ \\ \theta_a (\text{advancing}) &= 110^\circ\end{aligned}$$



*Poly(pentafluoropentyl acrylate) at surface*

*Poly(methyl acrylate) at surface*